

Paper Problems : The Paper Supply Chain

Scott Hider
President, Clampitt Paper



EXECUTIVE SUMMARY

SHIPMENTS

- UFS shipments were up +0.5% in 2021
- CFS shipments were down -0.4% in 2021

INVENTORY & SUPPLY

- UFS and CFS inventories dropped to record lows
- UFS Days of Supply dropped from a peak at 52 days to its current low at 27 days and now sits at the lower level of its control limits, indicating tight mill inventory position
- CFS Days of Supply dropped from a peak at 111 days to 23 days and has fallen well below the bottom control limit, indicating insufficient inventory to meet current and future demand

OPERATING

- UFS Operating Rates averaged 95% in 2021 - 13 points above same time period last year
- CFS Operating Rates averaged 102% in 2021 - 17 points above same time period last year
- Sept. UFS prices have risen \$190 over the past 10 months to \$1,060/ton, while NBSK Pulp has trended downwards
- UFS Imports are up 251% YTD, but still 103,000 tons below pre-COVID levels.



CAPACITY REDUCTIONS UFS | Uncoated Freesheet

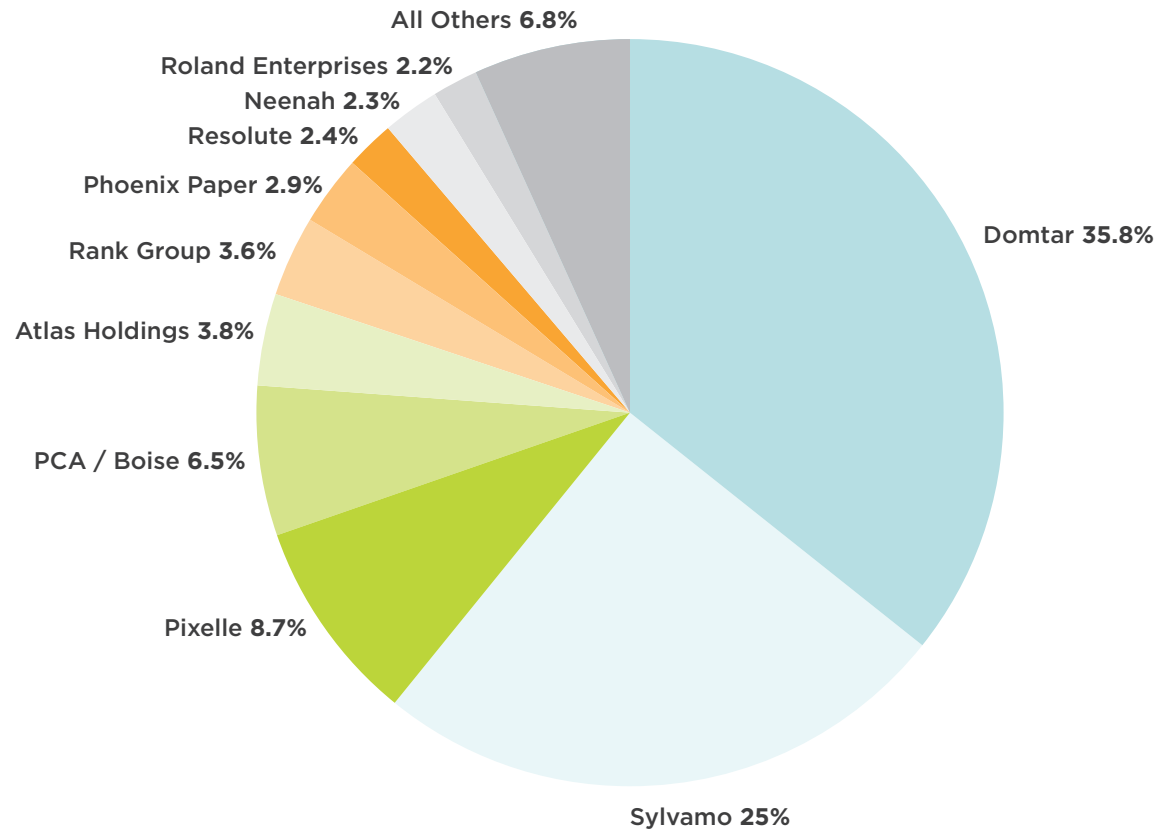
COMPANY	LOCATION	NET CHANGE IN TONS	DATE	COMMENTS
Flambeau	WI Park Falls	90K	2018 Q1	Permanently shut down PM3
PCA	WA Wallula	75K	2018 Q2	Converted PM3 from UFS & C1S to kraft linerboard 75k tons UFS + 125k tons specialty/release liner
Georgia Pacific	WA Camas	235K	2018 Q2	Permanently shut down P&W machine 80% cut size; 20% MOCR
2018 TOTAL TONS REMOVED		400K		
Georgia Pacific	LA Port Hudson	500K	2019 Q1	Permanently shut down PM3 & PM4 to exit mill from Communications business
Flambeau	WI Park Falls	55K	2019 Q2	Closed entire mill (PM1 & PM2)
Domtar	AR Ashdown	170K	2019 Q3	Closed PM63 Converted to pulp production
Domtar	MI Port Huron	34K	2019 Q3	Permanently closed PM6
2019 TOTAL TONS REMOVED		759K		
IP	AL Selma	235K	2020 Q1	Converted PM15 from UFS to bleached liner & containerboard
Domtar	TN Kingsport	420K	2020 Q2	Converted PM from UFS to linerboard Due to COVID demand destruction
Domtar	AR Ashdown	160K	2020 Q2	Shuttered PMs & converted to pulp production
2020 TOTAL TONS REMOVED		815K		
Domtar	MI Port Huron	33K	2021 Q1	Permanently closed mill due to COVID demand destruction
PCA	AL Jackson	190K	2021 Q1	Shifted J-3 to 50/50 production of white paper & containerboard
Appvion	PA Roaring Spring	120K	2021 Q1	Permanent mill closure & 3 PM
Midwest Paper	WI Combined Lock	45K	2021 Q2	Converted from UFS to brown paper production Formerly Appleton Coated
PCA	AL Jackson	90K	2021 Q4	Converted J-1 to production of corrugated medium
2021 TOTAL TONS REMOVED		478K		

Well over **1 million tons** of capacity has been removed from the UFS market since Covid hit in 2020. This is in addition to **substantial closures** the year prior (2019)



CAPACITY BY COMPANY UFS | Uncoated Freesheet

TOTAL 2021 CAPACITY : 6,935,000 TONS
ESTIMATED BY RISI



The top three UFS producers in North America (Domtar, Sylvamo & Pixelle) account for **69%** of the total UFS market.



TIGHTNESS CONTINUES OVERVIEW

The story in coated papers hasn't changed, with the December data showing another rise in demand (~3% Y/Y 0.5% for the year) even though shipments fell by 5% Y/Y and 2.5% for all of 2021

The big delta between rising demand and falling shipments continues to be imports—they rose by a further 18% in December, pulling the full-year gain to 8%. Furthermore, all of that gain came from coated woodfree imports, predominantly from Western Europe. Once again, mill inventories fell, with woodfree inventories down 61% Y/Y and mechanical inventories plunging by 64%.

Historically, producers rebuild inventories in the first half of the year, but that seems unlikely this year given that they are shipping every roll of paper they can put their hands on. In fact, producers have (in some cases we are aware of) booked every single hour of machine time for all of 2022, and are still turning away orders—this has never happened before. The reality is that there isn't enough paper to match demand, so prices must rise.

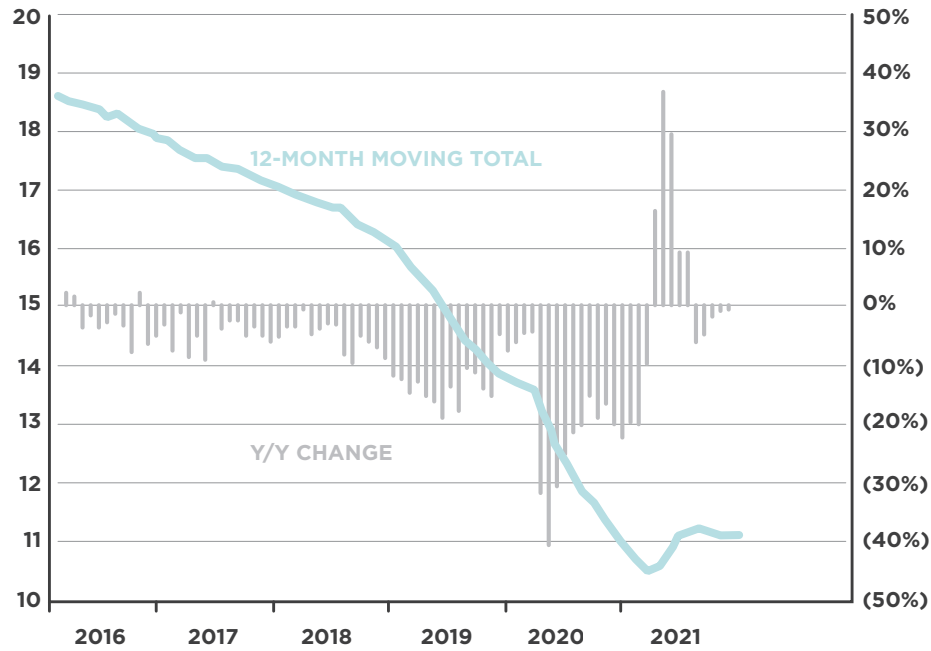
As if on cue, producers are lining up for more hikes in Q1 (\$50-\$60, generally) and these increases will put prices at, or above, all-time highs—and we might not yet be at the peak for this cycle. We have heard of buyers offering hundreds of dollars more per ton to secure product, but they often get rebuffed. Long-term damage may be happening to the overall demand picture as buyers/users become forced to find alternatives, but there is little choice but to push prices up when demand is so intense.



TIGHTNESS CONTINUES OVERVIEW

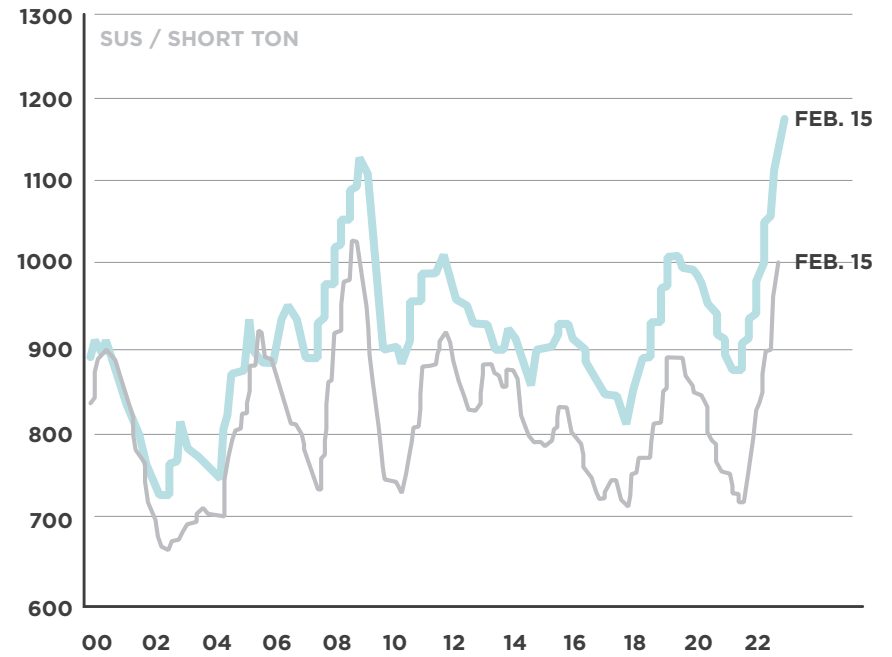
PRINTING & WRITING SHIPMENTS

000 SHORT TONS



U.S. COATED PRICING

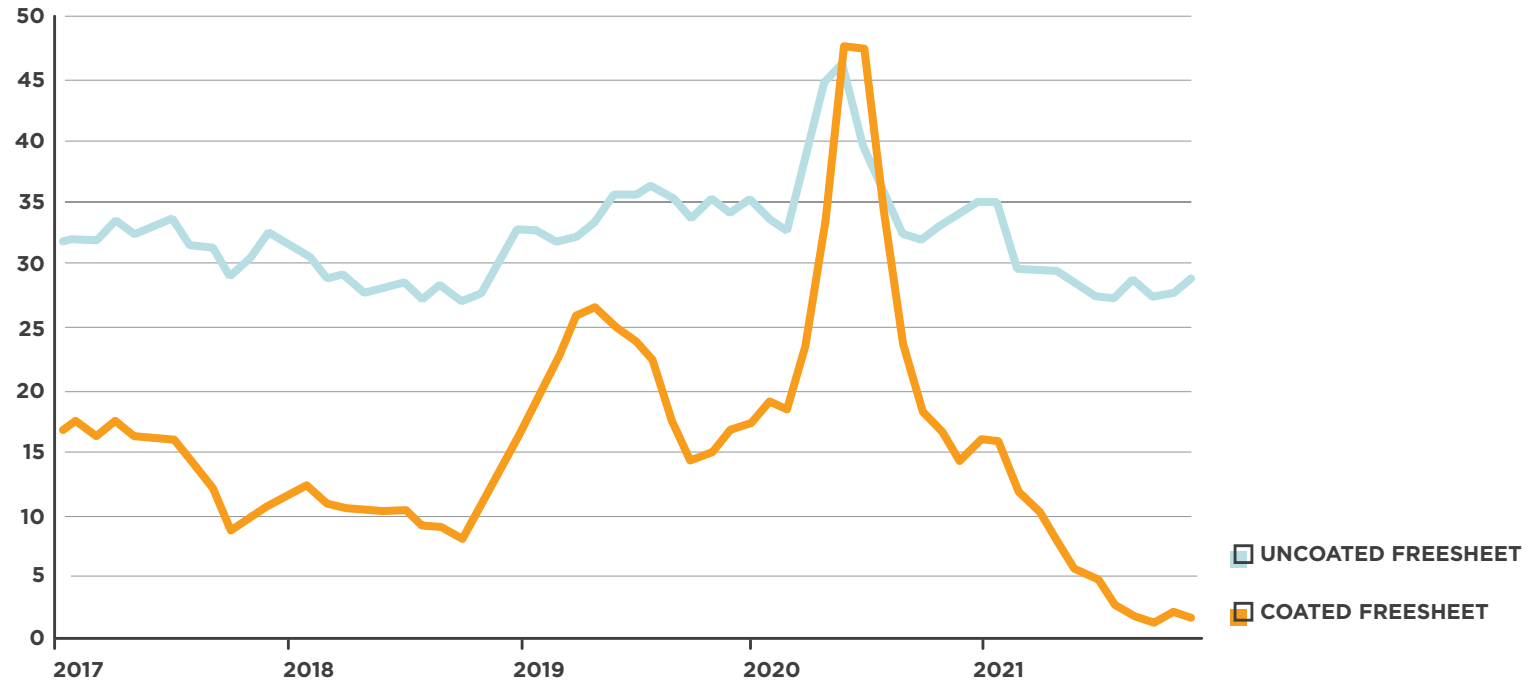
MONTHLY



TIGHTNESS CONTINUES DAYS OF SUPPLY

ALL DATA SOURCE : FASTMARKET RISI ESTIMATES

N.A. PRODUCER INVENTORIES OF PRINTING & WRITING PAPERS DAYS OF SUPPLY



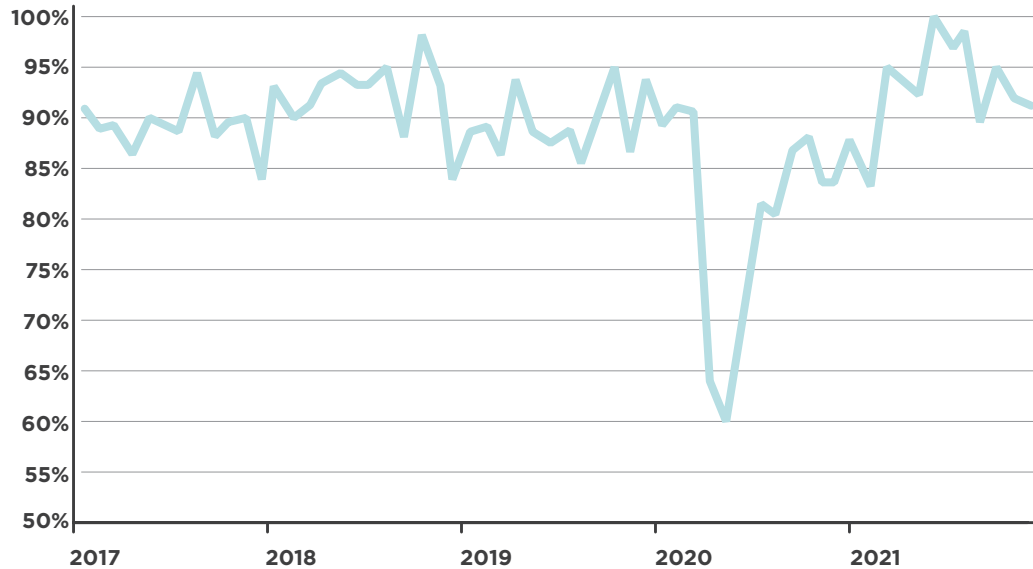
- UFS at an absolute all time low of inventory (28.9 DIOH)
- CFS at lows not even seen since 1980s (24.29 DIOH)
- Limited recovery potential in 2022
- Permanent changes likely for supply chain (i.e., make to order is the rule, limited to RDC stock)



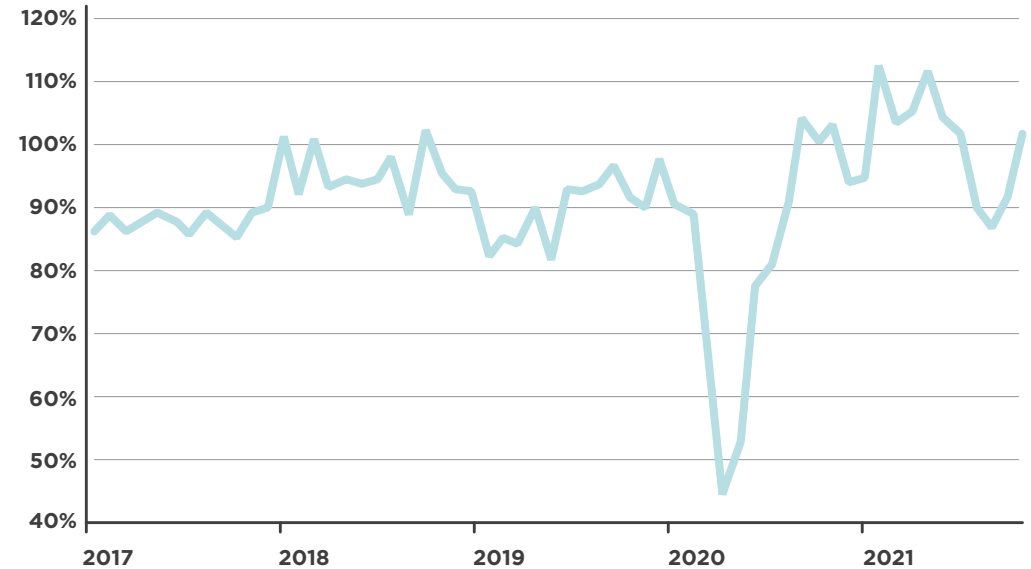
FURTHER EVIDENCE OF TIGHTNESS UFS + CF Operating Rates

ALL DATA SOURCE : FASTMARKET RISI ESTIMATES

UFS OPERATING RATES N.A. SEASONALLY ADJUSTED



COATED OPERATING RATES N.A. SEASONALLY ADJUSTED



Values >90% indicate likelihood of maximum production capacity due to PM maintenance.

Values > 95% indicate inventory draw downs as well!



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INDUSTRY STATISTIC SUMMARY UFS | Uncoated Freesheet

ALL DATA POINTS ARE IN COMPARISON TO THE SAME TIME PERIOD IN 2021 COMPARED TO 2022



DEMAND

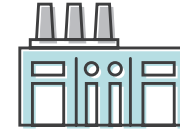
- UFS up 2% YTD
- Cutsizes up 6% YTD
- Offset up 2% YTD
- Opaque* up 21% YTD
- Forms up 2% YTD
- Envelope down 1% YTD
- Bristol down 10% YTD
- Specialty down 13% YTD

* Excludes lightweight opaques



TRADE

- Imported UFS up 18% YTD
- Imported Cutsizes up 23% YTD
- Imported Folio up 10% YTD
- Imported Rolls up 9% YTD
- Exports down 64% YTD



OPERATING RATES

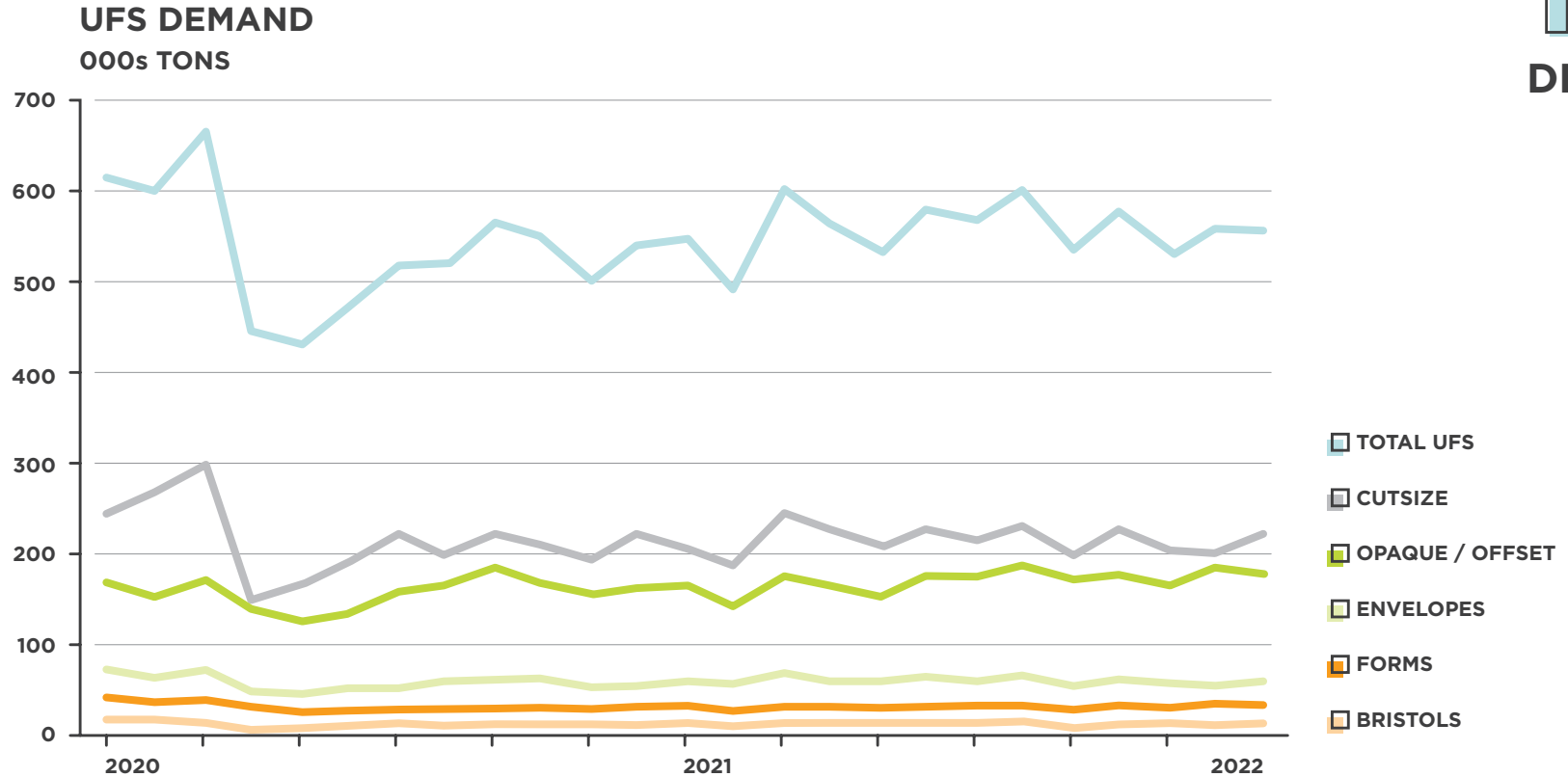
- January 92%* | +4pts Y/Y
- N.A. production down 7% YTD
- N.A. shipments down 2% YTD
- N.A. capacity down 6% YTD
- Mill inventories sit at 29 day of supply, 6 days below levels a year ago

* Adjusted for trim loss & scheduled maintenance downtime



DEMAND UFS | Uncoated Freesheet

DATA POINTS ARE FOR JANUARY 2022

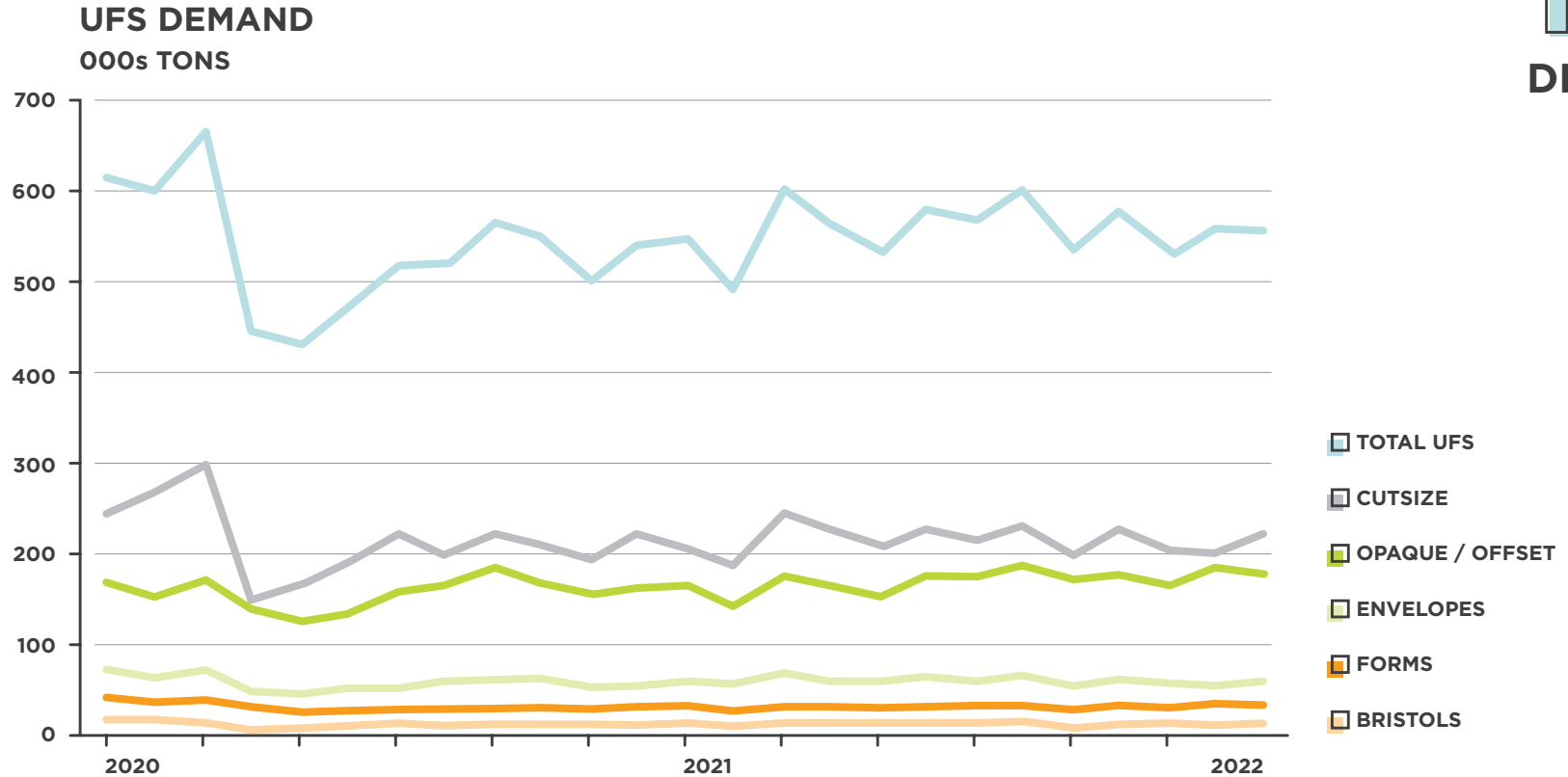


CUTSIZE demand rose 6% despite lowered workplace mobility caused by the Omnicron variant.
ENVELOPES demand slightly decreased dropping 1%.



DEMAND UFS | Uncoated Freesheet

DATA POINTS ARE FOR JANUARY 2022



OFFSET demand rose 2%. **OPAQUE** demand rose 21%, driving the increases in overall UWF demand. US Federal Reserve reported 7.3% uptick for the industrial index of printing activities.

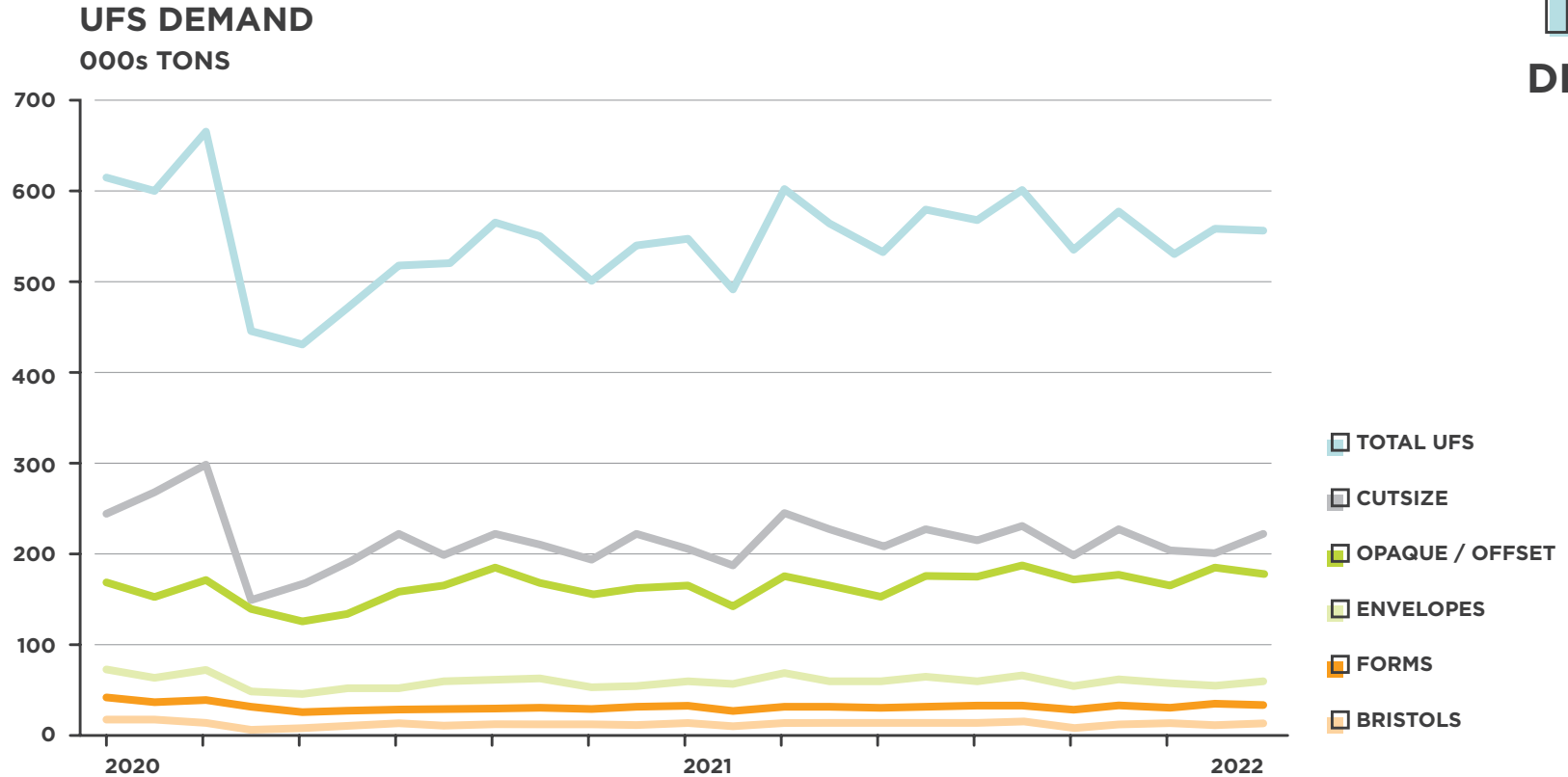
Book sales declined 5%. PER NPD BOOKSCAN



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DEMAND UFS | Uncoated Freesheet

DATA POINTS ARE FOR JANUARY 2022



FORMS demand increased 2%.

BRISTOL demand declined 10%. YTD demand for file folder is down 7%, index is down 17%, printing & postcard is down 5%, tag is up 4%.



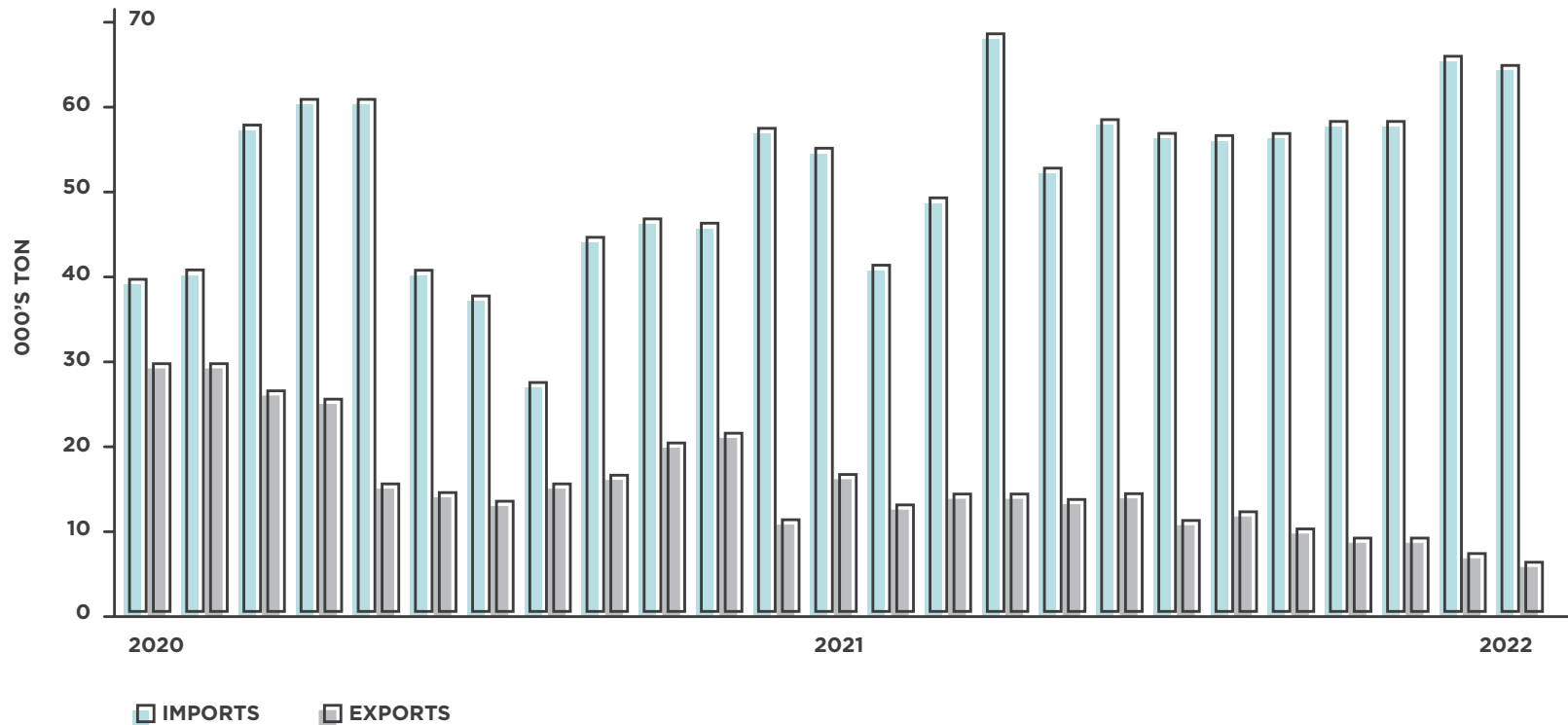
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TRADE UFS | Uncoated Freesheet

DATA POINTS ARE FOR JANUARY 2022



IMPORTS / EXPORTS

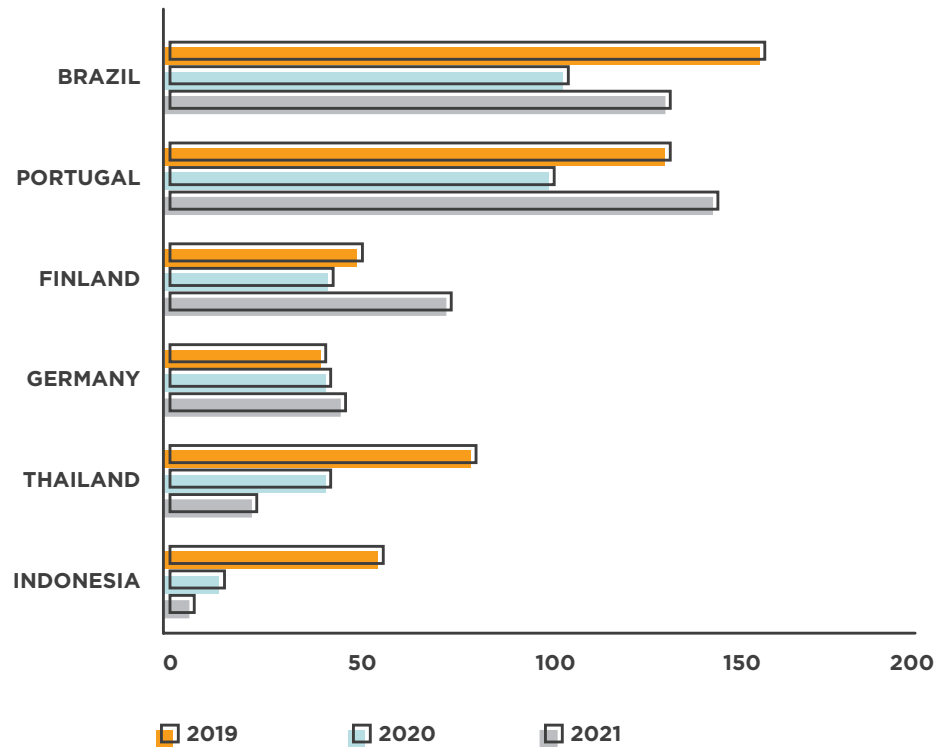


TRADE UFS | Uncoated Freesheet

DATA POINTS ARE THROUGH DECEMBER 2021



IMPORTS BY REGION 000s TONS

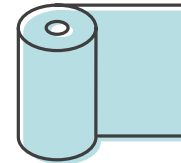


IMPORTS PRODUCT TYPE SHEETS VS. ROLLS



SHEETS

75% of all Imports Volume +15% YTD



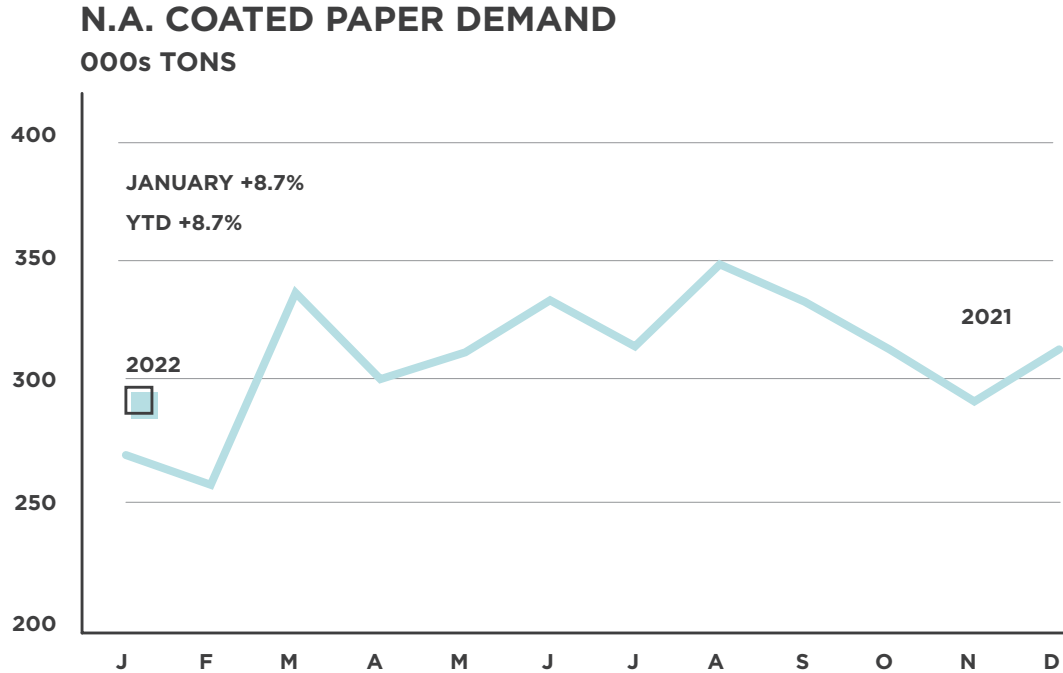
ROLLS

25% of all Imports Volume +9% YTD



MARKET DATA North American Coated Paper Statistics

DATA POINTS ARE FOR JANUARY 2022



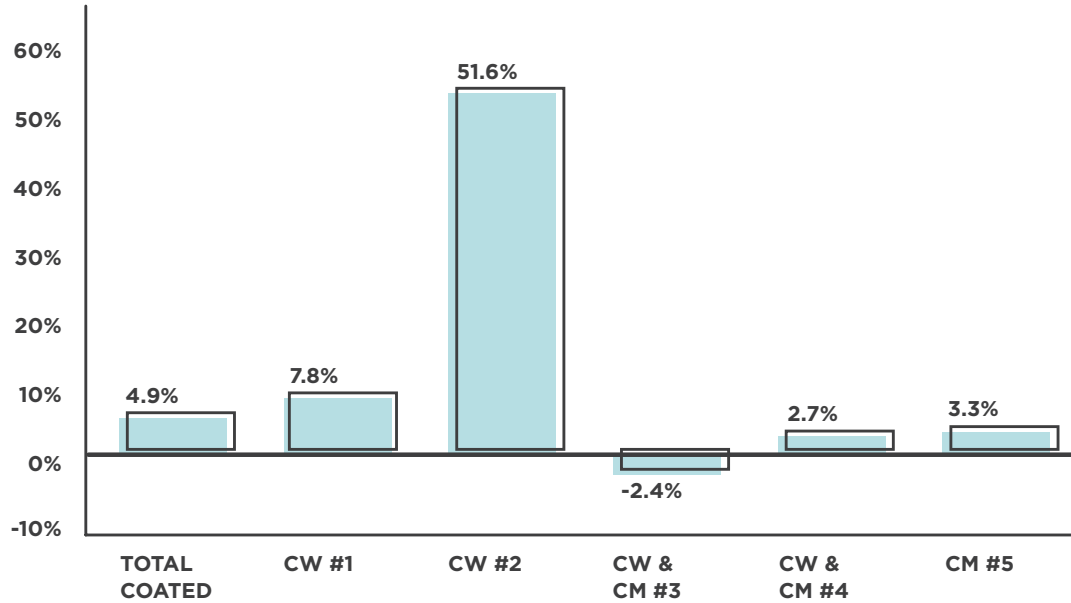
COMMENTARY North American demand for coated paper increased 8.7% YOY, with coated mechanical up 1% and coated freesheet **up 12%**! DotDasah Meredith announced the termination of 6 magazine titles totaling 100 million copies/year. Total shipments of coated was up 4.9% in January, while #3's were down -5.7% coated mechanical was up 125. Imports grew 14% YIY in January with Western Europe (11k tons) and South Korea (5k tons) leading the way. Operating rates still above 93%, coated inventories stopped dropping last month, but are at extremely low levels.



MARKET DATA North American Coated Paper Statistics

DATA POINTS ARE FOR JANUARY 2022

N.A. COATED SHIPMENTS BY GRADE % GROWTH - JANUARY 2022 VS. 2021

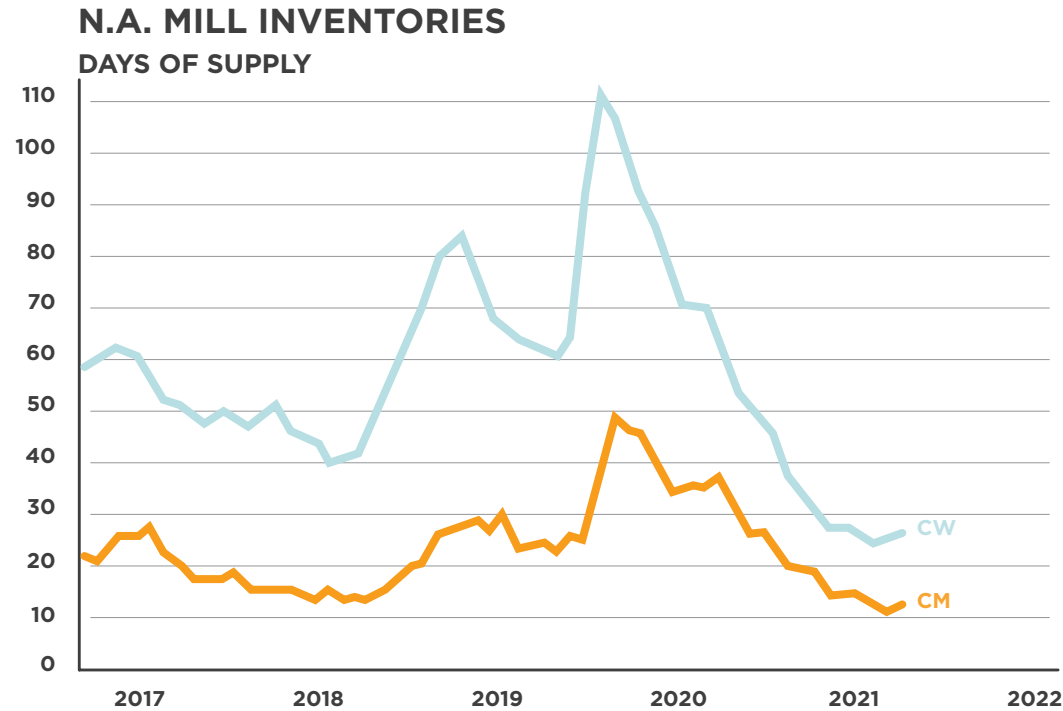


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SUPPLIER IMPACTS Freight

FEBRUARY 2022



February 17, 2022

Dear Valued Customer,

As you are aware, we have been experiencing unprecedented supply chain disruptions for months that have impacted all of our shipping modes. As a result of these issues, our ability to make on-time deliveries has been impacted. The main reasons for these disruptions have been the challenges all businesses and individuals are facing with the COVID pandemic, including but not limited to:

- COVID related absenteeism- shortage of long-haul drivers, dispatchers and rail crews
- Weather related issues
- Shortages of equipment- trucks, IM containers and railcars
- Delays in delivery of raw materials to mills impacting production cycles and timing

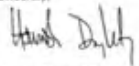
These complications are inter-connected and have created a ripple effect that is difficult to get ahead of at this time. Additionally, there have been protests at the Canadian border that disrupted the flow of traffic which impacted business to operate. These blockades have now been cleared but the resulting delays are still being felt.

Actions we are taking to improve the situation:

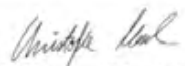
- Actively sourcing new vendors for truck and intermodal deliveries
- Leasing additional boxcars, where available, to add to our rail fleet to keep more volume shipping rail
- Working with rail vendors to get more railcars assigned to our facility to keep shipping via rail

While we work through these extraordinary supply chain challenges we ask for and appreciate your patience. Due to the lack of equipment, we anticipate delays continuing for the next couple of months. We are doing our best to deliver orders on time and in full but in many circumstances that may not be possible. Please contact your sales representative with questions or concerns.

Sincerely,



Hannah Doughty, VP Supply Chain
Paper Excellence Canada



Christophe Kusel, VP Sales & Marketing
Catalyst Paper (USA) Inc.

Catalyst Paper (USA) Inc., a Paper Excellence Company
13110 NE 177th Pl, STE B101, PMB 312, Woodinville, WA 98072
T: 206.838.2070 | F: 206.838.2071 | contact.us@catalystpaper.com | www.catalystpaper.com



February 9, 2022

Dear Valued Customer:

The wave of challenges continues!

With the current issue of demonstrations and multiple blockades at different borders across Canada, the already challenged trucking industry has significant problems. The industry had a been short of drivers, and the pandemic has only made it worse. The combination of driver sh and now the blockades have exasperated the situation. Supply chains are further negatively ir no delivery date is secure and rates are skyrocketing.

At Port Hawkesbury Paper, despite all efforts to meet promised dates, any truck shipment is currently at risk. Shifting everything possible to rail increases shipping time, but there is a higher confidence level the shipments will arrive. Truck shipments are uncertain, and rates can be 3-4 times the normal cost. Rail is currently the best option.

PHP will continue to utilize modes for the best possible outcome. You can be assured that every effort is being made to deliver as quickly as the current situation dictates. We understand that you need answers on delivery, but these are currently in flux. Customer Service and Transportation staff are working every alternative and are not readily available for inquiries. Any supercritical information requests can go to your salesperson for now. Please do not expect an immediate answer, but it will be addressed in our daily meetings and, subsequently, information will be provided.

Your patience is appreciated and never more needed than today.

Tom Gallagher
President
PHP Sales Services

120 Pulp Mill Road • Port Hawkesbury, Nova Scotia B9A 1A1 • Tel: 902.989.3606 • www.porthawkesbury.com



Clampitt Paper Company

SOURCE: PPPC + MILLCRAFT

SUPPLIER IMPACTS Finnish Paper Strike Update

RISI FASTMARKETS NEWS : FEBRUARY 2022



- Paper Workers Union blames management for continued strike
 - Employer Federation of Finnish Forest Industries used to negotiate all labor agreements for all companies simultaneously across the country
 - UPM is now the only company that has not adopted the company-level agreement proposal
 - 1.9% annual pay raises
 - White collar working conditions such as 100 hours of OT without compensation
- UPM has declared a force majeure with its customers but the union is adamant that the situation is not covered in force majeure, as it is a conflict caused by the company's adoption of ideological objectives. The union claims it is NOT targeting to improve earlier terms and conditions of work.

GENEVA, Switzerland, Feb 17, 2022 (Press Release) :

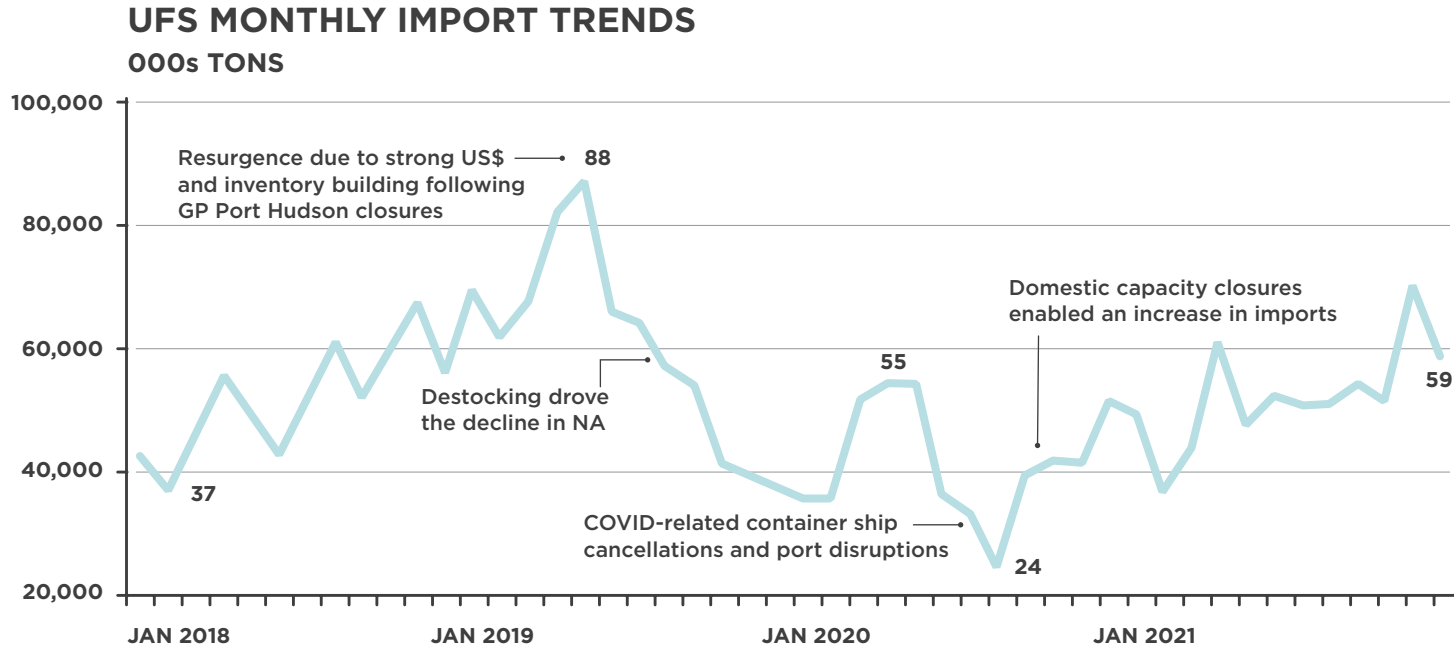
Europe is running out of paper because Finnish forestry giant UPM refuses to negotiate with unions represented striking workers. The strike, which has been extended until at least 12 March, is costing the company up to 20 million euros per week and risks causing a supply chain crisis.

The prolonged strike will force the company to break commercial contracts to supply paper and is expected to lead to a Europe-wide paper shortage. Intergraf, the European printing industry association, has written to UPM calling for an end to the strike, warning that 40% of the paper required by its members will not be available if the strike continues. UPM makes backing sheets for labels, which are used to label goods in all sectors, as well as material for packaging goods and publishing media.



Clampitt Paper Company

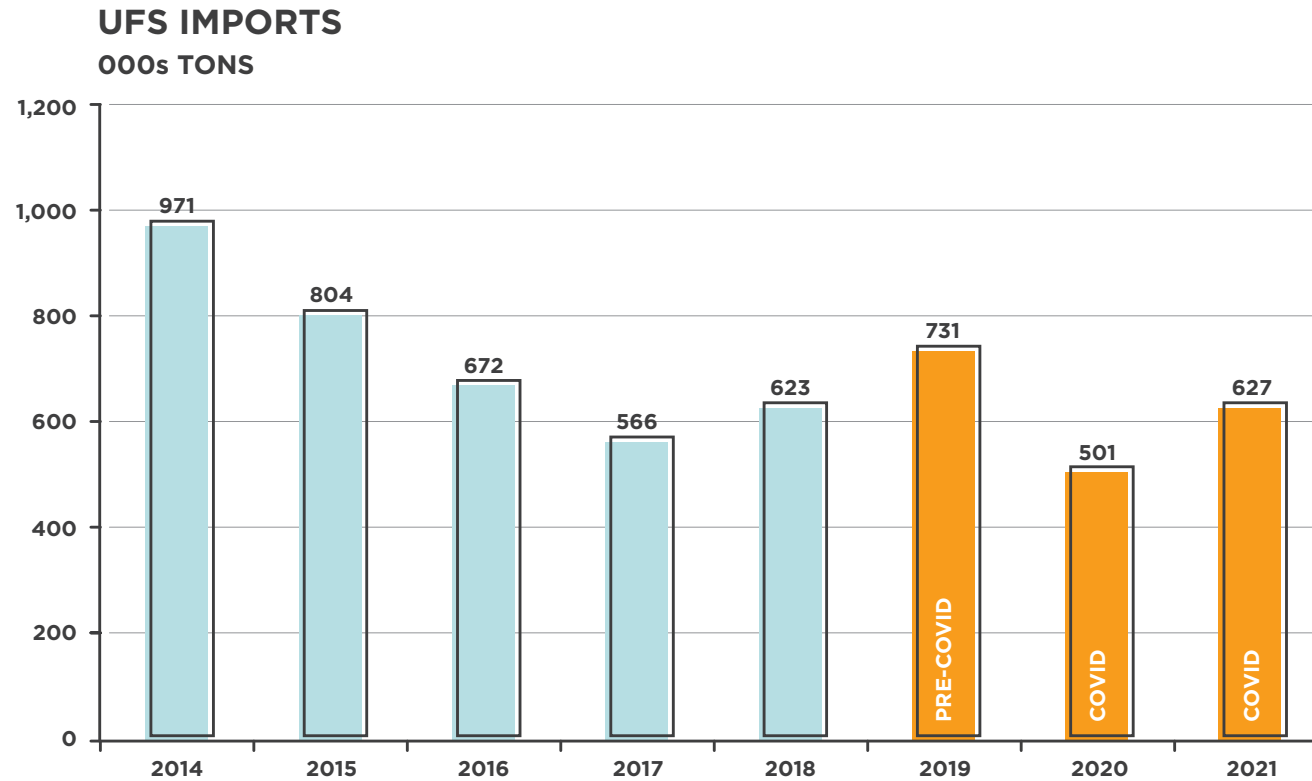
UFS IMPORT TRENDS North America



The economic shutdown and global shipping constraints caused by the pandemic forced UFS imports of their **lowest level (August 2020) in 22 years**. As demand has improved, so too have imports. However, long lead times remain an issue for most importers.



UFS IMPORT TRENDS North America



Imports were up 25% (+126%) in 2021 but remain -103,000 tons below pre-COVID levels.



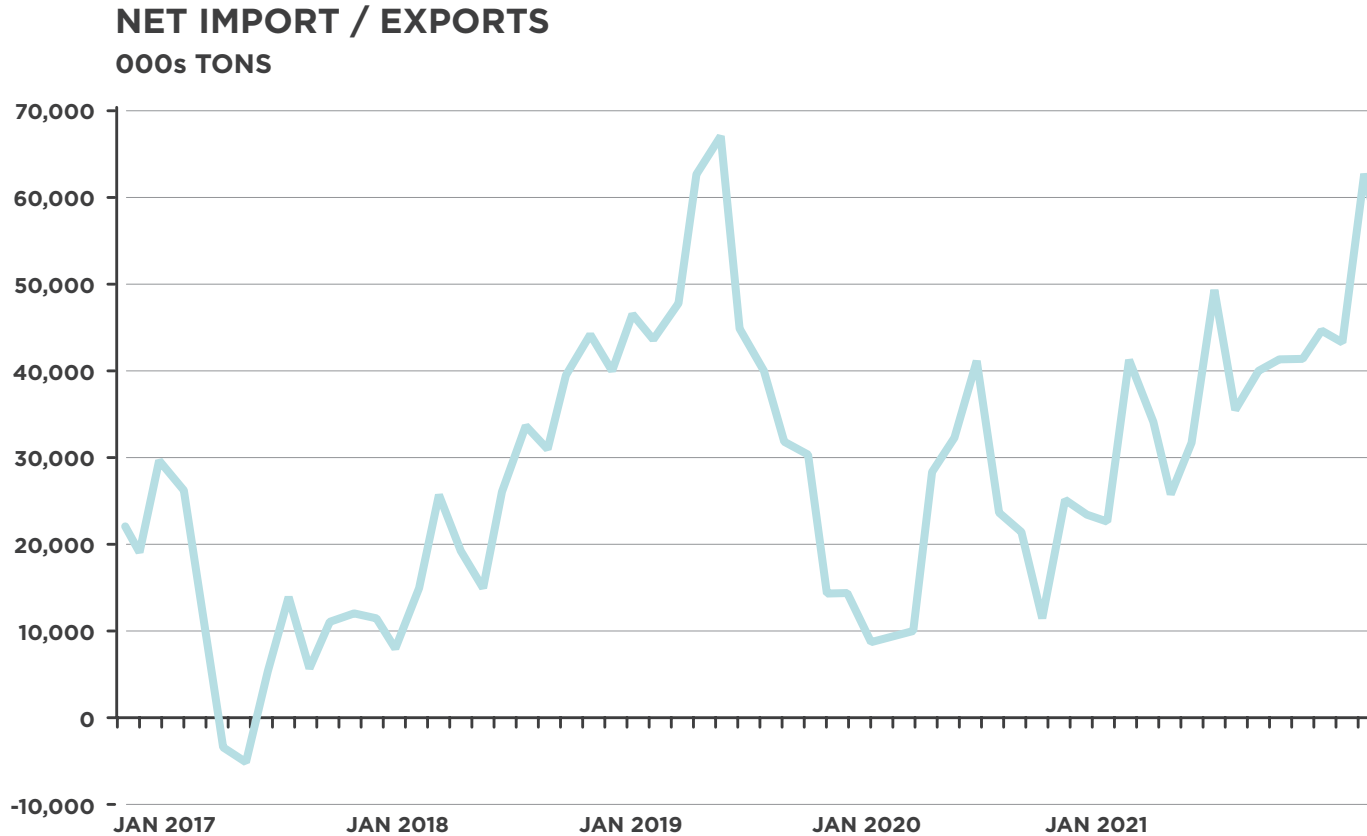
UFS IMPORT TRENDS North America



As domestic mills have shuttered capacity, their focus on export markets has diminished. Available capacity is now focused on servicing North American customers, further resulting in a weak export market.



UFS IMPORT TRENDS Net Imports/Exports North America

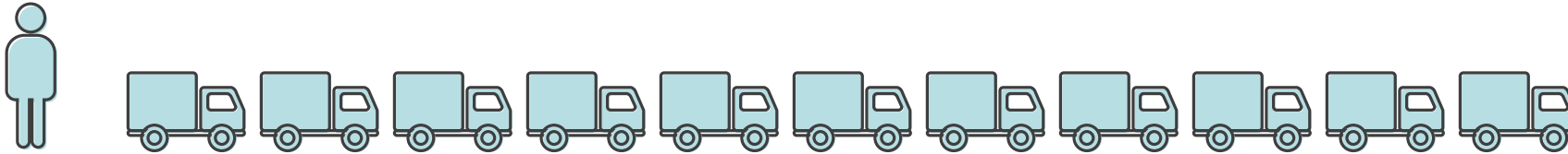


In 2021, North America imported 500,000 more tons of UFS than it exported.



TRANSPORTATION U.S. Trucking Statistics

DATA POINTS ARE FOR JANUARY 2022



LOAD-TO-DRIVER RATIO

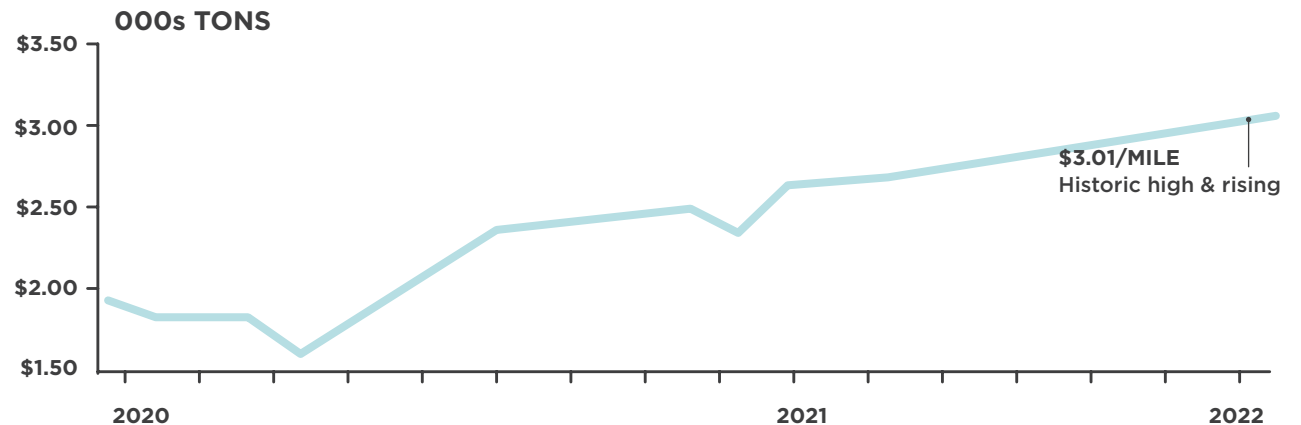
In the first month of 2022, load-to-driver ratio increased to 11:1.



FUEL COSTS

Rose \$.08/gallon and remain the highest since 2018.

NATIONAL SPOT AVERAGE / MILE



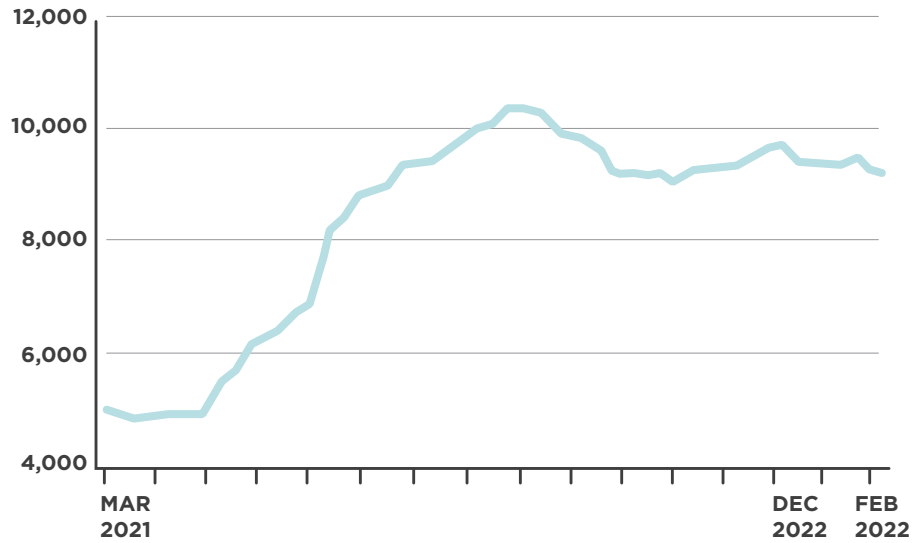
The national spot rate average increased to \$3.01/mile.



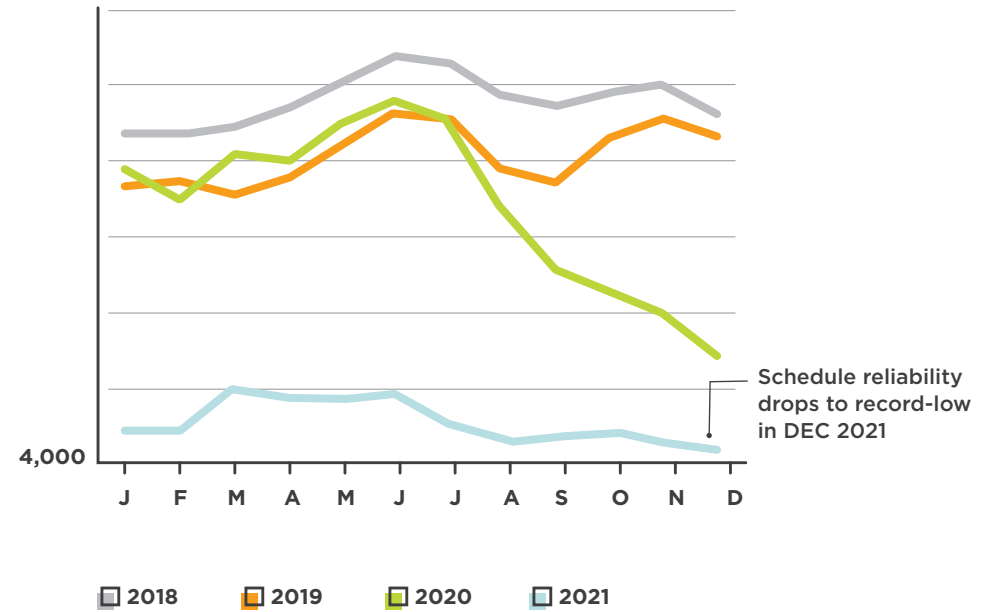
CONTAINERS U.S. Trucking Statistics

DATA POINTS ARE FOR JANUARY 2022

DREWRY WORLD CONTAINER INDEX 10 MAR 22 | US\$/40FT



GLOBAL OCEAN FREIGHT DEVELOPMENTS 10 MAR 22 | US\$/40FT



THE VALUE OF A PAPER MERCHANT

DATA POINTS ARE FOR JANUARY 2022

LOCAL / DEDICATED STOCK DRIVES SUPPLY CHAIN EFFICIENCIES

- Combined regional spend to gain leverage
- Bundle with complimentary products
- Last mile of delivery is the costliest
- Improve working capital

“SHERPA” EFFECT

- Help navigate path to success
- Product selection / Supplier fit
- Explore strategic alternatives to enable quick turns
- Sales growth via efficient response

MERCHANT PARTNERSHIP CAN BE A GREAT COMPETITIVE ADVANTAGE!

npt
National Paper
Trade Association

Values a MERCHANT PROVIDES

Supply chain management and logistics are integral in running any efficient operation. However, these should not define the operation or its mission. Rather, our organizations are strengthened when we focus on how our product can benefit those we serve. While paper was invented by the Chinese in 105 A.D., merchants quickly became an integral part of its history, bringing paper making to other parts of the world and helping to develop its variations and uses. From beautifully crafted invitations and hand written notes on luxurious paper, to complex printed pieces using specialty inks and finishes, paper continues to bring joy to people's lives. So long as there is paper, there will be a merchant to tell this story.

1. Merchants have a deep understanding of Paper and Print. They introduce new products, share best practices, foster creativity, and support the value of print.
2. Merchants provide one stop shopping for breadth of product to today's Printer. Merchants stock local inventory and bundle Paper, Packaging, and Wide format solutions.
3. Merchants provide business credit enabling customers to grow, build inventory, and manage cash flow.
4. Merchants provide Supply Chain Efficiencies through Ecommerce ordering, logistical services, inventory management, and reporting tools.
5. Merchants supply samples and support printers in making the correct color, weight, and texture selections. Merchants also provide technical support pre- and post-press.
6. Merchants have strong relationships with mills. They negotiate supply programs, manage service, and communicate industry trends.
7. Merchants provide educational support, host paper schools, and share market intelligence within the print community.
8. Merchants actively promote the sustainability of paper and print to the local community. Merchants support organizations like Two Sides and the Paper & Packaging Board, promoting fiber based sustainability options.
9. Many merchants provide custom sheet converting, storage, and fulfillment services.
10. Some merchants have paper stores, focusing on smaller-end users and retail customers. These stores provide just-in-time and pick-up solutions.

